

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-29 (Cancelled)

Claim 30. (Currently Amended) A matrix comprising a nanofiller, which comprises a nanofiller bonded covalently by a chemical reaction to an organic and/or inorganic matrix material, the nanofiller having a size of less than 20 Mn and comprising functionalized polyhedral oligomeric silicon-oxygen cluster units of the formula

$[(R_aX_bSiO_{1.5})_m (R_aX_dSiO)_n (R_eX_fSi_2O_{2.5})_o (R_gX_hSi_2O_2)_a]$ with:

a,b,c=0-1;d=1-2; e, g, f=0-3;h=1-4;

$m \cdot b + o \cdot f + p \cdot h \leq 4$; $m+n+o+p \geq 4$; $a+b = 1$; $c+d = 2$; $e+f = 3$ and $g+h = 4$;

R = hydrogen atom, alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, cycloalkynyl, aryl, heteroaryl group or polymer unit, which are in each case substituted or unsubstituted, or further functionalized polyhedral oligomeric silicon-oxygen cluster units, which are attached by way of a polymer unit or a bridging unit,

X = oxy, hydroxyl, alkoxy, carboxyl, silyl, alkylsilyl, alkoxyisilyl, siloxy, alkylsiloxy, alkoxyisiloxy, silylalkyl, alkoxyisilylalkyl, alkylsilylalkyl, halogen, epoxy, ester, fluoroalkyl, isocyanate, blocked isocyanate, acrylate, methacrylate, nitrile, amino, phosphine group or substituents of the type R comprising at least one such group of the type X,

the substituents of the type R being identical or different and there being not more than one substituent of the type X per cluster unit which is reacted with the matrix material, and thereafter the nanofiller is covalently bonded to the matrix material.

Claim 31. (Previously Presented) The matrix as claimed in claim 30, which comprises as inorganic matrix material, mineral building materials and/or inorganic sinter compositions.

Claim 32. (Previously Presented) The matrix as claimed in claim 30,
which comprises as organic matrix material an elastomer or a thermoplastic or
thermoset.

Claim 33. (Previously Presented) The matrix as claimed in claim 30, wherein
the organic matrix material is a plastic or polymer selected from the group consisting
of polyethylene, poly-propylene, polyester, copolyester, polycarbonate, polyamide,
copolyamide, polyurethane, polyacrylate, polymethacrylate, polymethacrylate copolymer,
polysiloxane, polysilane, polytetrafluoroethylene, phenolic resin, polyoxymethylene, epoxy
resin, polyvinyl chloride, vinyl chloride copolymer, polystyrene, styrene copolymers, ABS
polymer, alkyd resin, unsaturated polyester resin, nitrocellulose resin, rubber and mixtures
thereof.

Claim 34. (Previously Presented) The matrix as claimed in claim 30,
wherein
the matrix comprises from 0.05 to 90% by weight of the nanofiller.

Claim 35. (Previously Presented) A process for preparing a matrix as claimed in
claim 30,
which comprises mixing the nanofiller into a matrix material which is in liquid form
and forming by chemical reaction at least one covalent bond between nanofiller and matrix
material.

Claim 36. (Previously Presented) The process as claimed in claim 35,

wherein

the nanofiller is mixed mechanically en masse into a polymer melt.

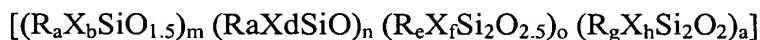
Claim 37. (Previously Presented) The process as claimed in claim 35,

wherein

before being mixed into the matrix material the nanofiller is dissolved in a solvent.

Claim 38. (Currently Amended) A method for producing plastics, sealing compounds, paints, printing inks, adhesives, ceramics, mineral building materials, concrete, mortar, plaster, or coatings of ceramics and plastics, said method comprising:

producing said plastics, sealing compounds, paints, printing inks, adhesives, ceramics, mineral building materials, concrete, mortar, plaster, or coatings of ceramics and plastics which comprises a nanofiller bonded covalently by a chemical reaction to an organic and/or inorganic matrix material, the nanofiller having a size of less than 20 nm and comprising functionalized polyhedral oligomeric silicon-oxygen cluster units of the formula



with:

a,b,c=0-1;d=1-2; e, g, f=0-3;h=1-4;

m·b + and + o·f + p·h ≤ 4; m+n+o+p ≥ 4; a+b = 1; c+d = 2; e+f = 3 and g+h = 4;

R = hydrogen atom, alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, cycloalkynyl, aryl, heteroaryl group or polymer unit, which are in each case substituted or unsubstituted, or further functionalized polyhedral oligomeric silicon-oxygen cluster units, which are attached by way of a polymer unit or a bridging unit,

X = oxy, hydroxyl, alkoxy, carboxyl, silyl, alkylsilyl, alkoxy silyl, siloxy, alkylsiloxy, alkoxy siloxy, silylalkyl, alkoxy silylalkyl, alkylsilylalkyl, halogen, epoxy, ester,

fluoroalkyl, isocyanate, blocked isocyanate, acrylate, methacrylate, nitrile, amino, phosphine group or substituents of the type R comprising at least one such group of the type X,
the substituents of the type R being identical or different and there being not more
than one substituent of the type X per cluster unit which is reacted with the matrix material,
and thereafter the nanofiller is covalently bonded to the matrix material.